

NAVAL HEALTH RESEARCH CENTER

SHIPBOARD MEDICAL ADMISSIONS DURING PEACETIME AND COMBAT SUPPORT DEPLOYMENTS

B. R. Derderian

C. G. Blood

19990202 062

Report No. 98-30

DTIC QUALITY INSPECTED 4

Approved for public release: distribution unlimited.



NAVAL HEALTH RESEARCH CENTER
P O BOX 85122
SAN DIEGO, CA 92186-5122

BUREAU OF MEDICINE AND SURGERY (BUMED-26)
WASHINGTON, DC 20372-5300



**SHIPBOARD MEDICAL ADMISSIONS DURING
PEACETIME AND COMBAT SUPPORT DEPLOYMENTS**

Berg R. Derderian
Christopher G. Blood

Medical Information Systems and
Operations Research Department

Naval Health Research Center
P.O. Box 85122
San Diego, CA 92186-5122

Report No. 98-30, supported by the Office of Naval Research, Arlington, VA, Department of the Navy, under Work Unit No. 63706N-M0095.005-6704. The views expressed in this article are those of the authors and do not reflect the official policy of the Department of Defense, nor the U.S. Government. Approved for public release, distribution unlimited.

SUMMARY

Problem

To assist in medical requirements determinations, the shipboard casualty projection system, SHIPCAS, provides projections of the number of wounded-in-action (WIA) and disease and nonbattle injuries (DNBI) likely to be sustained on board U.S. Navy ships during combat operations. More accurate forecasts of theater medical requirements can be obtained by combining the projected DNBI and WIA incidence rates with the expected illness category distributions of the patient streams.

Objective

The present investigation seeks to improve theater medical resource requirement projections by providing medical planners with information on the types of illnesses likely to be incurred aboard ships in combat support operations and in different operational theaters.

Approach

Records of inpatient admissions aboard aircraft carriers deployed to different theaters during combat support operations and noncombat operations were examined. Percent distributions of major diagnosis categories were calculated for combat and peacetime deployments in the Western Pacific theater, and for peacetime deployments to the Western Pacific and Mediterranean theaters. Similarly, lengths of stay (treatment times) were analyzed by illness category for the various deployment groups.

Results

Comparisons of illness distributions of combat support deployments and noncombat deployments to the same theater indicated higher respiratory illness percentages during the combat deployments. Peacetime comparisons of illness distributions between the Western Pacific and the Mediterranean area of operations indicated higher percentages of infective, respiratory, and skin disorders in the Western Pacific theater and a higher percentage of total admissions comprised by the accident category within the Mediterranean theater.

Conclusion

Regional differences in shipboard illness category distributions were greater than differences attributable to combat deployment status. Percentage distributions of illness categories may be combined with overall DNBI incidence rate projections to more accurately estimate needed medical resources during combat operations.

SHIPBOARD MEDICAL ADMISSIONS DURING PEACETIME AND COMBAT SUPPORT DEPLOYMENTS

Medical planning for naval combat operations requires projections of the medical resources needed to treat sick and injured shipboard personnel. Reliable estimates of the numbers of medical conditions likely to need treatment during a combat engagement allow the appropriate medical staff, supplies, and equipment to be programmed and pre-deployed. Previous research has examined the rates of wounded in action¹ (WIA) and disease and nonbattle injuries² (DNBI) that have been incurred by forces afloat during combat operations. These casualty incidence rates were adjusted to reflect changes to weaponry and ship structures since the earlier combat operations,^{3,4} and the adjusted rates have been incorporated into the SHIPCAS casualty projection tool.⁵ However, accurate resource projections require that the expected distribution of specific injuries and illnesses be ascertained in addition to the rates of overall WIA and DNBI.

The present investigation seeks to provide a basis for the medical resource projections by examining the distributions of illnesses and nonbattle injuries incurred by shipboard personnel on various deployments. Toward that end, medical admissions occurring aboard US Navy aircraft carriers during deployments to different geographical theaters, as well as during both combat-support and peacetime deployments, will be examined. Additionally, lengths-of-stay in shipboard treatment facilities will be examined to gauge the severity of the admissions occurring aboard the carriers.

Specifically, this study compares aircraft carrier medical admissions 1) between Vietnam combat support deployments and deployments to the Mediterranean during the same time frame (1965-72); 2) between Vietnam combat support deployments (1965-72) and Western Pacific (WestPac) deployments immediately after the cease-fire (1973-75); and 3) between peacetime Mediterranean deployments and WestPac deployments occurring in more recent years (1976 to 1989). The first comparison should provide some insights into disease distribution differences between combat support and non-combat deployments. The second comparison also examines admissions during combat and non-combat deployments – but has the added benefit of holding the geographical theater constant. The third comparison provides an analysis of differences in disease distributions between two geographical theaters, albeit in a non-combat setting.

METHOD

Data

Records of Vietnam combat-support carrier deployments were obtained from the Military History Pages⁶. The ships and their dates of arrival and departure from the Vietnam conflict zone are presented in Appendix A. If hostilities ended before the ship left the combat zone, then the cease-fire date (January 27, 1973) was used instead of the "departure from" date.

Non-combat support deployment data for aircraft carriers were obtained from records maintained by the Naval Historical Center.^{7,8} These peacetime deployment data, also shown in Appendix A, represent the time periods from homeport departure until the return to homeport by the carriers.

The inpatient medical data used in this study were extracted from the medical history files⁹ maintained by the Naval Health Research Center (NHRC). These files currently include inpatient admission data onboard aircraft carriers from 1965 to 1989 for U. S. Navy enlisted personnel; medical admissions of officers, therefore, were not included in the present study. Data for both combat support and peacetime deployments include all admissions on carriers, even if resulting from illness aboard another ship in the task force. Diagnosis codes were recorded in DDDIC¹⁰ (Department of Defense Disease and Injury Codes) format prior to 1970, and then were recorded according to ICD¹¹ (International Classification of Disease) coding schemas.

Excluded from this study were hospitalizations on carriers during Vietnam deployments that occurred while the ship was in transit to and from the combat zone. These "transit" admissions were not deemed to have occurred during combat support operations because they did not occur in the combat zone. Peacetime medical records that tended to reflect outpatient-type visits were also excluded: diagnoses of "observation – no need for further medical care" and those falling under the ICD category "supplementary classifications and special conditions" were removed.

The fifteen categories of disorders analyzed in this study were: Infective and Parasitic; Neoplasms; Endocrine, Nutritional, and Metabolic; Blood and Blood Forming; Mental; Nervous System and Sense Organs; Circulatory; Respiratory; Digestive; Genitourinary; Skin and Subcutaneous Tissue; Musculoskeletal and Connective Tissue; Congenital Anomalies; Symptoms and Ill-defined; and

Accidents, Poisonings, and Violence. Additionally, any individual three-digit ICD diagnosis constituting 10% or more of a category total and 1% or more of the overall admissions for that deployment group was also selected for comparison.

Length of stay (LOS) is computed as the period of time from date of admission until the date the patient is given a disposition status of "discharged from hospital." Patients who transferred to other medical facilities were not used in the calculation of length-of-stay statistics, nor were those patients not discharged prior to the ship's return to homeport.

Analyses

Medical admissions onboard the carriers were examined by their percent distributions within broad ICD categories of disease/nonbattle injuries (DNBI). Comparisons were made of the percent distributions of DNBI categories between 1) sixty-eight Vietnam combat support deployments (1965-1972) and twenty-six Mediterranean deployments during the conflict era (1965-1972); 2) the sixty-eight Vietnam combat support deployments and twelve WestPac deployments immediately following the cease-fire (1973-1975); and 3) twenty-five WestPac peacetime deployments occurring in 1976-89 and twenty-one Mediterranean deployments during the same time period.

An overall test of homogeneity of the percent distribution of the major diagnosis categories between each pair of groups defined above was performed using a chi-square test. The hypothesis tested was that there was no difference in the overall distribution of the diagnosis categories between the comparison groups.

Additionally, post hoc 99% confidence intervals were calculated for each major diagnosis category proportion and the percentage of each individual diagnosis selected. If the two proportions being compared did not have overlapping confidence intervals, then the difference between those proportions was considered to be statistically significant. In constructing the confidence limits, the arc sine transformation¹² was used to stabilize the variance, which improves the confidence limit estimates.

Finally, in comparing length of stays (LOSs), the Wilcoxon rank sum test (also known as Mann-Whitney U test) was used to determine if the range of values of the LOS were statistically different between the deployment groups tested. This non-parametric test was used primarily for two reasons. First, LOS values have a distribution that is heavily skewed. Second, this test compares the *distributions*

of the LOS values between the deployment groups, which is more informative than testing a single, local parameter such as the mean or median. The Wilcoxon test was used to compare the overall LOS between deployment groups, as well as LOS of individual illness categories between the deployment groups. Testing was carried out at the .01 significance level.

RESULTS

Comparisons of the deployment groups' most prevalent major diagnosis category proportions are presented in Figure 1. Figures 2 and 3 present graphs for these eleven diagnostic categories of the mean and median treatment length-of-stays (LOS) by diagnostic category for each of the deployment groups. Figure 2 graph indicates that in the 1965-72 deployments, admissions for infective and parasitic disorders, mental disorders, musculoskeletal problems, and accidents had the highest mean lengths of stay of the examined diagnostic categories, while in the later deployments no one category of illness had a predominantly longer mean LOS. This graph indicates that except for genitourinary problems, the mean lengths-of-stay during Mediterranean deployments were longer than for those occurring in the same time frame among the WestPac deployments. Figure 3 indicates that, within both operational theaters, the median LOS for most illness categories decreased slightly between 1965-72 and 1976-89.

ILLNESS CATEGORY PERCENTAGES

Using the chi-square test, the overall difference in illness category distribution between the Vietnam combat support deployments and the Mediterranean deployments in same time period (1965-72) was found to be significant, $X^2 (14, N= 23,642) = 327, p < 0.001$. Comparisons of the ICD category distributions between Vietnam combat-support deployments (1965-1972) and Mediterranean peacetime deployments during the same time frame are shown in Table 1. The confidence interval analyses indicated the respiratory disease category proportion for the combat support deployments was significantly higher than that of the concurrently-deployed Mediterranean theater ships (19.1% versus 13.1%, respectively), as was the category of skin disorders (12.3% versus 9.2%). Higher rates of acute tonsillitis and influenza greatly contributed to the overall respiratory category difference; a higher percentage of cellulitis abscess was largely responsible for the higher skin disorder category difference.

Several of the category percentages for the non-combat support deployments proved to be slightly, but significantly higher than for those of the combat support deployments: neoplasms, endocrine disorders,

mental disorders, congenital anomalies, accidents, and digestive system disorders all comprised 0 - 3% more of total admissions among the non-combat support deployments.

The chi-square test indicated the overall difference in illness category distribution between the Vietnam combat support deployments and the WestPac deployments immediately following the cessation of hostilities was also significant, $X^2 (14, N= 18,307) = 348, p < 0.001$. Table 2 displays the diagnostic category distribution comparisons between the combat support deployments (1965-72) and the peacetime deployments to the same region (WestPac) in the three years immediately after the ceasefire (1973-75). The combat-era deployments yielded significantly higher category percentages for respiratory system disorders (19.1% vs. 10.5%), and digestive disorders (10.6% vs. 7.3%) compared to the post-ceasefire deployments. Higher percentages of influenza and gastroenteritis contributed significantly to the respiratory and digestive category differences. Also, though the differences were less than 2% each, the neoplasms and endocrine disorders category percentages were significantly higher among the combat support deployments. Conversely, the non-combat WestPac deployments had significantly higher percentages of their overall admissions accounted for by the categories of infective disorders (18.4% vs. 7.1%), and skin diseases (15.3% vs. 12.3%). The higher infective category percentage among the post-cease fire deployments was due in part to significantly higher percentages of diarrheal disease and measles, while the elevated percentage of the skin disorder category was largely attributable to a higher percentage of cellulitis.

The overall difference in illness category distribution between the peacetime WestPac deployment and the peacetime Mediterranean deployments was also found to be significant, $X^2 (14, N= 4,937) = 184, p < 0.001$. Table 3 represents the geographical theater contrast of DNBI category percentages – Mediterranean deployments during 1976-89 versus WestPac deployments during the same time frame. The confidence interval analyses indicated that the WestPac region had significantly higher percentages of their overall admissions comprised by infective disorders (14.5% vs. 8.0%), skin disorders (14.3% vs. 9.8%), and respiratory disorders (7.9% vs. 4.0%). A significantly higher percentage of hepatitis contributed to the elevated percentage of the infective disorder category; within the skin disorder category, cellulitis represented a significantly higher percentage of the overall admissions on the WestPac deployments than on the Mediterranean theater deployments. Conversely, the categories of accidents and mental disorders comprised significantly higher percentages of the overall admissions on the Mediterranean deployments (26.5% vs. 13.3% and 6.6% vs. 4.0%, respectively) when contrasted with the WestPac deployments.

LENGTHS OF STAY

The numbers of admissions upon which the average lengths of stay are based differ slightly from the numbers of admissions upon which the percentage distributions are based. This is due to the fact that some shipboard admissions resulted in transfers to shore-based facilities either because of illness severity or because of the ship's return to its homeport before the treatments were completed. However, among the five deployment data sets, 94.5% of the admissions had treatment completed while aboard the carrier.

Table 4 displays the mean lengths of stay (LOS) for each diagnostic category along with the standard deviation and median for the combat-support deployments and the non-combat deployments during the same time frame (1965-72). The mean LOS was slightly longer for the non-combat deployments (7.6 days versus 6.4 days), while the median for both data sets was 4 days. Utilizing the Wilcoxon rank sum test with a .01 significance level, the overall difference between the deployment groups in the distribution of the LOS values across all illness categories was found to be statistically significant. Similarly, LOS distributions differed significantly for circulatory system disorders, genitourinary system disorders, mental disorders, and accidents between the combat support and non-combat deployment groups; in none of these groups was the mean LOS longer for the combat support deployment group.

Table 5 contrasts the length of stay data of the combat support admissions with the admissions among the deployments in the same geographic theater immediately following cessation of hostilities. In this instance, the overall mean for the combat-support deployments was greater than the mean for the WestPac deployments immediately following the conflict (6.4 days versus 5.0 days); the median LOS for both groups was 4 days. The difference between deployment groups in the distribution of the LOS values across all illness categories was statistically significant. Among individual illness categories, the LOS distributions differed significantly within neoplasms, skin disorders, diseases of musculoskeletal system, and accidents; all of these categories displayed higher mean lengths of stay among the combat-support deployments than among the deployments to the same theater following the ceasefire.

Table 6 shows the lengths of stay data for the peacetime deployments (1976-89) to the Mediterranean theater and to the Western Pacific theater. The mean LOS for the WestPac deployments was 3.6 days, while the mean LOS for the Mediterranean deployments was 4.3 days. The median lengths of stay were 3 days and 2 days, respectively. The difference between deployment groups in LOS distributions across all illness categories was not significant. The only significant differences among LOS distributions within the individual illness categories were for circulatory system disorders (Mediterranean theater had higher mean LOS) and diseases of the genitourinary system (WestPac theater had higher mean LOS).

DISCUSSION

The objective of the present study was to examine potential differences in shipboard illness category distributions between combat support deployments and noncombat deployments, and between deployments to the Western Pacific theater and deployments to the Mediterranean theater. Previous studies have examined incidence rates among shipboard forces; the present analysis, therefore, focused on examining illness distributions. Toward this end, medical admissions aboard aircraft carriers were examined for five different deployment groups. While the results of these analyses indicated significant differences in the overall distributions of illness categories between the deployment groups compared, these differences were due in part to the large sample sizes used in this study as well as to the presence of a few illness category percentage differences.

The comparisons of illness distributions between the combat support deployments and the peacetime deployments in the same time frame yielded higher percentages of the overall admissions represented by respiratory and skin disorders. These differences may be attributable to the higher tempo of combat operations requiring greater contact among personnel in more confined working conditions, and to the fact that these differences may be due in part to theater differences inherent in the combat support deployments (WestPac) versus the noncombat deployments (Mediterranean). The humid climatological conditions in the Western Pacific theater would be expected to more readily foster conditions conducive to many skin disorders. Previous epidemiological studies have shown results along similar lines.¹³

When the illness distribution for combat-support deployments were compared with noncombat deployments in the same theater immediately following the hostilities, respiratory disorder admissions and digestive disorder admissions constituted significantly larger percentages on the combat operations than among the noncombat operations. While the digestive disorder difference was only about 3%, the respiratory disorder category difference was more than 8% -- perhaps indicative of a deleterious health effect of working in close quarters during combat operations. Among noncombat deployments, a 9% higher percentage of their total admissions were accounted for by infective disorders than among their combat support counterparts. This difference may be due to the fact that opportunities for shore visits, where infective disorders might more readily be contracted, would have been greater during the noncombat operations than during combat support operations, where confinement to ships was more likely.

In the peacetime comparisons of distributions between the Western Pacific and Mediterranean theaters, the WestPac theater showed higher percentages of overall admissions comprised by infective disorders, respiratory disorders, and skin disorders – all of which might be expected because of the climatological differences between theaters.

The lengths of stay analyses indicated relatively few differences in the distributions of treatment times as a function of combat or theater. Significant differences were more likely to be due to differences in the variability within illness categories rather than large differences in measures of central tendency (mean or median). Generally, differences in mean LOS were less than 1-3 days, but several differences were greater. For example, mental disorder treatment times were nearly four days shorter in the comparisons between combat and noncombat deployments (1965-72). Musculoskeletal disorder treatment times for the combat-support deployments were six days longer than among the deployments to the same theater immediately after the hostilities -- suggestive perhaps of more serious strains associated with higher tempos of operations.

Previous studies have provided the basis for projections of wounded-in-action incidence rates¹ and DNBI incidence rates^{2,13}. In addition to overall WIA and DNBI rates, military medical models also require projection of the types of admissions likely to be sustained during combat operations to more accurately predict the necessary medical resources. The results of the present study indicated greater differences in illness distributions tied to operational theater than associated with combat status. However, the higher percentage of respiratory disorders among the combat-support deployments when compared with both same time frame peacetime deployments and same theater peacetime deployments suggests that this illness category may warrant special consideration by medical planners when preparing for naval combat operations. Further, though admissions aboard aircraft carriers may not be viewed as “true” hospital admissions, the average lengths of stay for these medical occurrences suggests that the hospitalizations occurring at sea warrant the same attention to medical resource planning as is devoted to planning for admissions at shore-based treatment facilities.

REFERENCES

1. Blood CG, Jolly RT, Odowick MS. Casualty Incidence during Naval Combat Operations: A Matter of Medical Readiness, Naval War College Review, XLIX, 4: 124-134, Autumn, 1996.
2. Blood CG, Pugh WM, Gauker ED, Pearsall DM. Comparisons of Wartime and Peacetime Disease and Non-Battle Injury Rates Aboard Ships of the British Royal Navy, Military Medicine, 157, 12: 641-644, 1992.
3. Blood CG, Marks JS, Odowick MS. Shipboard Casualty Forecasting: Adjustments to Ship Hit Probabilities, 1996. San Diego, CA: Naval Health Research Center Report No. 96-25.
4. Marks JS, Blood CG, Gilman PA. Casualty Sustainment During Naval Warfare: Adjustments to World War II-Based Projections, 1995. San Diego, CA: Naval Health Research Center Report No.95-37.
5. Blood CG, Marks JS, Le LP. Using the Shipboard Casualty Projection System (SHIPCAS) to Forecast Ship Hits and Casualty Sustainment, 1997. San Diego, CA: Naval Health Research Center Technical Doc. 97-3C.
6. Deployments of the USN carriers during the Vietnam War page. Military History Web site. Available at: <http://ourworld.compuserve.com/homepages/MCNoch/mhvwcvdd.htm>. Accessed March 24, 1998.
7. Carrier Deployments by Year page. Naval Historical Center Web site. Available at: <http://www.history.navy.mil/branches/org4-6.htm>. Accessed April 13, 1998.
8. Order of battle for carriers and carrier-based squadrons in the Western Pacific (WestPac) and Vietnam 1964-1975 page. Naval Historical Center Web site. Available at: <http://www.history.navy.mil/branches/ordbat.htm>. Accessed May 7, 1998.
9. Garland FC, Helmkamp JC, Gunderson EKE, Gorham ED, Miller MM, McNally MS, Thompson FA. A Guide to the Computerized Medical Data Resources of the Naval Health Research Center, 1987. San Diego, CA: Naval Health Research Center Report no. 87-13.
10. Department of Defense Disease and Injury Codes. Washington, D.C.: Government Printing Office, NavMed P-5082, 1963.
11. 1998 Physician International Classification of Diseases, Ninth Revision, Clinical Modification, Fifth Edition. Medicode Publications, Salt Lake City, UT. 1997.
12. Hogg RV, Craig AT. Introduction to Mathematical Statistics, Fourth Edition. Macmillan Publishing Co., Inc., New York, NY. 1978.
13. Blood CG, Pugh WM, Griffith DK, Nirona CB. Navy Medical Resource Planning: Rates of Illness for Various Operational Theaters, 1988. San Diego, CA: Naval Health Research Center Report No. 88-42.

FIGURE 1: PERCENT OF ADMISSIONS BY MAJOR DIAGNOSTIC CATEGORY

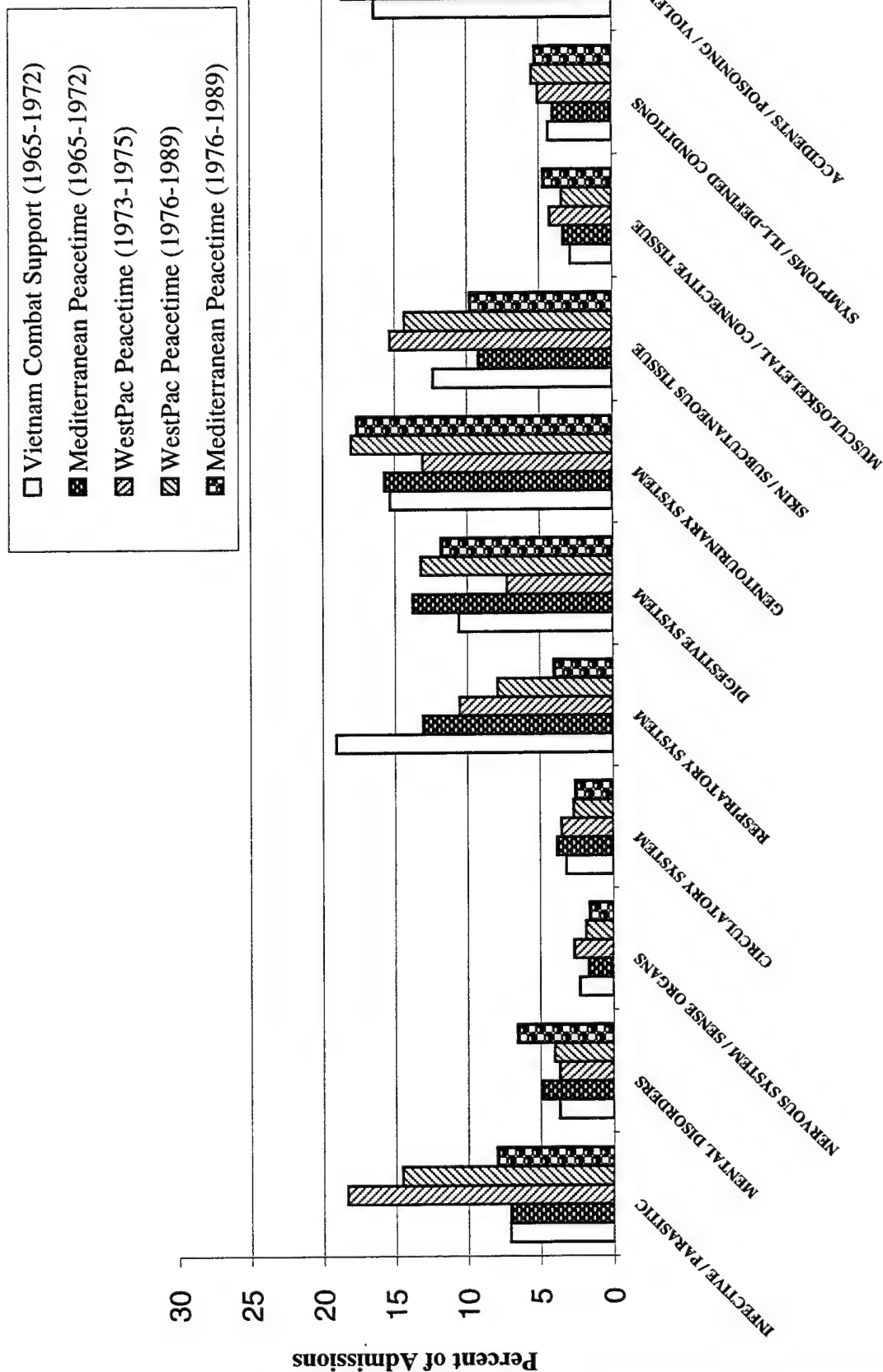


FIGURE 2: MEAN LENGTH OF STAY BY MAJOR DIAGNOSTIC CATEGORY

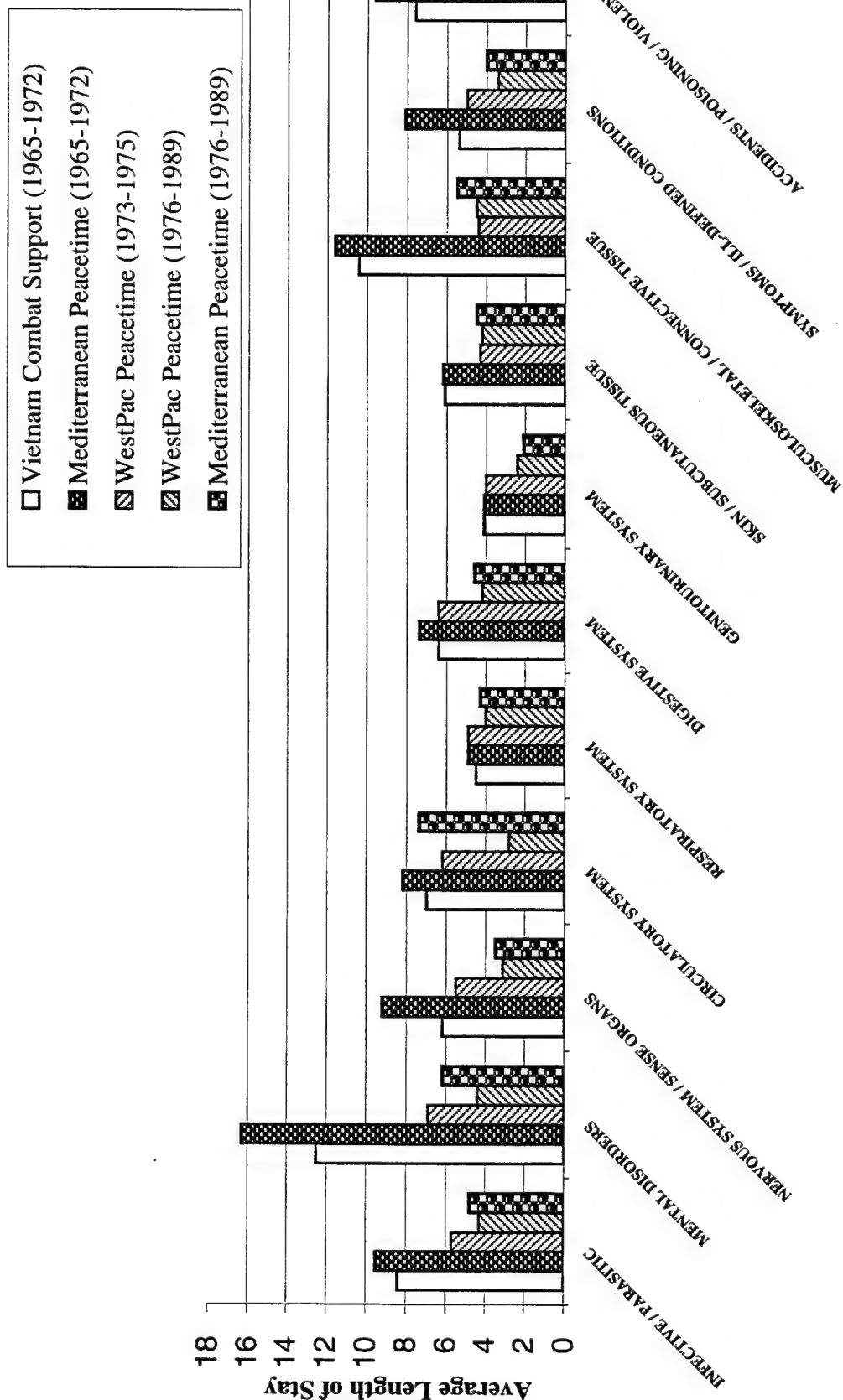
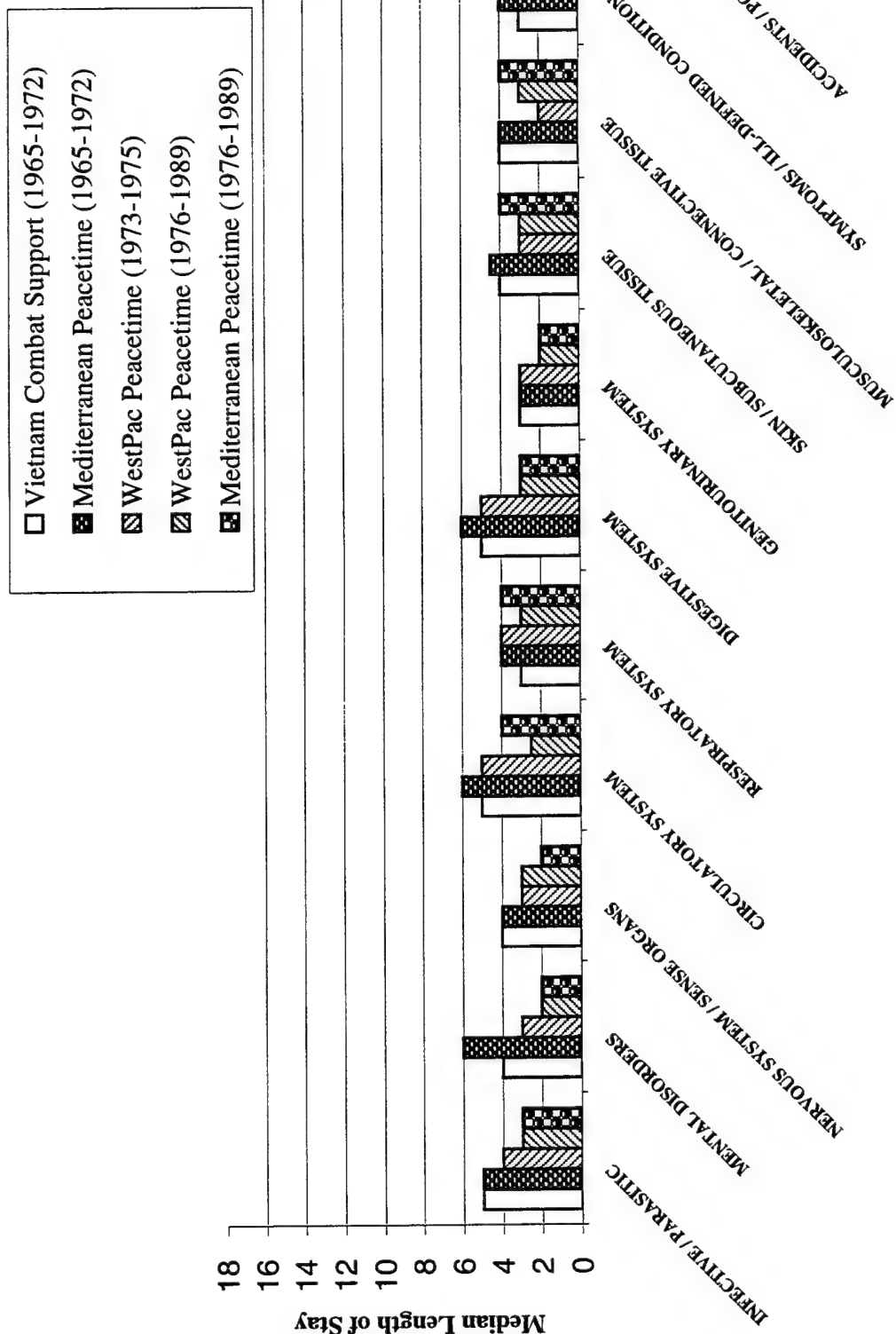


FIGURE 3: MEDIAN LENGTH OF STAY BY MAJOR DIAGNOSTIC CATEGORY



**TABLE 1. PERCENT OF ADMISSIONS BY MAJOR DIAGNOSTIC CATEGORY:
VIETNAM COMBAT SUPPORT VS. MEDITERRANEAN PEACETIME (1965-1972)**

Diagnostic Category	Vietnam 1965-1972 (68 deployments)		Med. 1965-1972 (26 deployments)	
	Freq.	Pct.	Freq.	Pct.
Infective and Parasitic Diseases	1,195	7.11	485	7.09
Infectious Mononucleosis	253	1.51	66	0.97
Other Viral Diseases	248	1.48	117	1.71
Neoplasms	340	2.02	245	3.58^b
Neoplasm Benign Of Other And Unspecified Organs And Tissues	267	1.59	183	2.68 ^b
Endocrine, Nutritional And Metabolic Diseases	57	0.34	50	0.73^b
Diseases Of Blood And Blood Forming Organs	62	0.37	13	0.19
Mental Disorders	620	3.69	331	4.84^b
Neurosis	187	1.11	104	1.52
Personality Disorders	131	0.78	80	1.17
Diseases Of The Nervous System And Sense Organs	385	2.29	115	1.68
Diseases Of The Circulatory System	539	3.21	261	3.82
Hemorrhoids	274	1.63	111	1.62
Diseases Of The Respiratory System	3,207	19.08^a	892	13.05
Acute Tonsillitis	532	3.17 ^a	117	1.71
Influenza	1,018	6.06 ^a	254	3.72
Diseases Of The Digestive System	1,778	10.58	940	13.75^b
Acute Appendicitis	181	1.08	120	1.76 ^b
Inguinal Hernia Without Mention Of Obstruction	459	2.73	254	3.72 ^b
Gastroenteritis And Colitis Except Ulcerative Of Noninfectious Origin	533	3.17	192	2.81
Diseases Of The Genitourinary System	2,572	15.31	1,073	15.69
Calculus Of Kidney And Ureter	260	1.55	93	1.36
Orchitis And Epididymitis	272	1.62	96	1.40
Redundant Prepuce And Phimosis	1,502	8.94	668	9.77
Diseases Of The Skin And Subcutaneous Tissue	2,071	12.32^a	627	9.17
Other Cellulitis Abscess Without Mention Lymphangitis	841	5.00 ^a	196	2.87
Other Cellulitis Abscess With Lymphangitis	314	1.87	106	1.55
Diseases Of The Musculoskeletal System And Connective Tissue	475	2.83	229	3.35
Synovitis Bursitis Tenosynovitis	129	0.77	73	1.07
Congenital Anomalies	18	0.11	27	0.40^b
Symptoms And Ill-Defined Conditions	732	4.36	277	4.05
Other General Symptoms	192	1.14	47	0.69
Accidents, Poisoning And Violence	2,754	16.39	1,272	18.61^b
Totals:	16,805	100.00	6,837	100.00

^a Vietnam combat support illness proportion is significantly higher than illness percent of Vietnam era Mediterranean deployments.

^b Mediterranean peacetime (1965-1972) illness proportion is significantly higher than illness percent of Vietnam combat support deployments.

**TABLE 2. PERCENT OF ADMISSIONS BY MAJOR DIAGNOSTIC CATEGORY:
VIETNAM COMBAT SUPPORT VS. WESTPAC PEACETIME (1973-1975)**

Diagnostic Category	Vietnam 1965-1972 (68 deployments)		WestPac 1973-1975 (12 deployments)	
	Freq.	Pct.	Freq.	Pct.
Infective and Parasitic Diseases	1,195	7.11	276	18.38^b
Diarrheal Disease	140	0.83	51	3.40 ^b
Measles	16	0.10	41	2.73 ^b
Infectious Mononucleosis	253	1.51	35	2.33
Other Viral Diseases	248	1.48	35	2.33
Neoplasms	340	2.02^a	7	0.47
Neoplasm Benign Of Other And Unspecified Organs And Tissues	267	1.59 ^a	0	0.00
Endocrine, Nutritional And Metabolic Diseases	57	0.34^a	0	0.00
Diseases Of Blood And Blood Forming Organs	62	0.37	4	0.27
Mental Disorders	620	3.69	55	3.66
Neurosis	187	1.11	13	0.87
Personality Disorders	131	0.78	6	0.40
Diseases Of The Nervous System And Sense Organs	385	2.29	40	2.66
Conjunctivitis And Ophthalmia	147	0.88	25	1.66
Diseases Of The Circulatory System	539	3.21	53	3.53
Hemorrhoids	274	1.63	23	1.53
Diseases Of The Respiratory System	3,207	19.08^a	158	10.52
Acute Tonsillitis	532	3.17	43	2.86
Influenza	1,018	6.06 ^a	12	0.80
Pneumonia Unspecified	92	0.55	25	1.66 ^b
Diseases Of The Digestive System	1,778	10.58^a	109	7.26
Acute Appendicitis	181	1.08	9	0.60
Appendix	134	0.80	20	1.33
Inguinal Hernia Without Mention Of Obstruction	459	2.73	35	2.33
Gastroenteritis And Colitis Except Ulcerative Of Noninfectious Origin	533	3.17 ^a	1	0.07
Diseases Of The Genitourinary System	2,572	15.31	196	13.05
Calculus Of Kidney And Ureter	260	1.55	17	1.13
Orchitis And Epididymitis	272	1.62	30	2.00
Redundant Prepuce And Phimosis	1,502	8.94 ^a	96	6.39
Male Genital Organs Other Disease Of	181	1.08	27	1.80
Diseases Of The Skin And Subcutaneous Tissue	2,071	12.32	230	15.31^b
Other Cellulitis Abscess Without Mention Lymphangitis	841	5.00 ^a	0	0.00
Other Cellulitis Abscess With Lymphangitis	314	1.87	159	10.59 ^b
Diseases Of The Musculoskeletal System And Connective Tissue	475	2.83	64	4.26
Vertebrogenic Pain Syndrome	72	0.43	32	2.13 ^b
Synovitis Bursitis Tenosynovitis	129	0.77	15	1.00
Congenital Anomalies	18	0.11	6	0.40
Symptoms And Ill-Defined Conditions	732	4.36	76	5.06
Symptoms Referable To Abdomen And Lower Gastrointestinal Tract	147	0.88	19	1.27
Other General Symptoms	192	1.14	13	0.87
Accidents, Poisoning And Violence	2,754	16.39	228	15.18
Totals:	16,805	100.00	1,502	100.00

^a Vietnam combat support illness proportion is significantly higher than illness percent of post-Vietnam conflict WestPac deployments.

^b WestPac peacetime (1973-1975) illness proportion is significantly higher than illness percent in Vietnam conflict zone.

**TABLE 3. PERCENT OF ADMISSIONS BY MAJOR DIAGNOSTIC CATEGORY:
WESTPAC PEACETIME (1976-1989) VS. MEDITERRANEAN PEACETIME (1976-1989)**

Diagnostic Category	WestPac 1976-1989 (25 deployments)		Med. 1976-1989 (21 deployments)	
	Freq.	Pct.	Freq.	Pct.
Infective and Parasitic Diseases	195	14.53^a	288	8.01
Diarrheal Disease	31	2.31	67	1.86
Chickenpox	23	1.71	21	0.58
Viral Hepatitis	20	1.49 ^a	9	0.25
Other Viral Diseases	35	2.61	45	1.25
Neoplasms	1	0.08	13	0.36
Endocrine, Nutritional And Metabolic Diseases	6	0.45	21	0.58
Diseases Of Blood And Blood Forming Organs	7	0.52	11	0.31
Mental Disorders	54	4.02	236	6.57^b
Neurosis	9	0.67	36	1.00
Diseases Of The Nervous System And Sense Organs	25	1.86	58	1.61
Diseases Of The Circulatory System	36	2.68	93	2.59
Diseases Of The Respiratory System	106	7.90^a	145	4.03
Acute Tonsillitis	16	1.19	17	0.47
Pneumonia Unspecified	18	1.34	29	0.81
Diseases Of The Digestive System	177	13.19	424	11.79
Disorders Of Tooth Development And Eruption	17	1.27	71	1.98
Acute Appendicitis	6	0.45	42	1.17
Appendix	17	1.27	26	0.72
Inguinal Hernia Without Mention Of Obstruction	50	3.73	111	3.09
Other Diseases Of Liver	24	1.79 ^a	5	0.14
Diseases Of The Genitourinary System	242	18.03	634	17.64
Redundant Prepuce And Phimosis	174	12.97	478	13.30
Diseases Of The Skin And Subcutaneous Tissue	192	14.31^a	352	9.79
Other Cellulitis Abscess With Lymphangitis	134	9.99 ^a	205	5.70
Pilonidal Cyst	5	0.37	66	1.84 ^b
Diseases Of The Musculoskeletal System And Connective Tissue	46	3.43	169	4.70
Vertebrogenic Pain Syndrome	17	1.27	67	1.86
Congenital Anomalies	2	0.15	10	0.28
Symptoms And Ill-Defined Conditions	74	5.51	190	5.29
Symptoms Referable To Abdomen And Lower Gastrointestinal Tract	18	1.34	47	1.31
Other General Symptoms	31	2.31 ^a	22	0.61
Accidents, Poisoning And Violence	179	13.34	951	26.45^b
Totals:	1,342	100.00	3,595	100.00

^a WestPac (1976-1989) illness proportion is significantly higher than illness percent of Mediterranean (1976-1989) deployments.

^b Mediterranean (1976-1989) illness proportion is significantly higher than illness percent of WestPac (1976-1989) deployments.

**TABLE 4. LENGTH OF STAY STATISTICS BY MAJOR DIAGNOSTIC CATEGORY
VIETNAM COMBAT SUPPORT VS. MEDITERRANEAN PEACETIME (1965-1972)**

Diagnostic Category	Vietnam 1965-1972 (68 deployments)				Med. 1965-1972 (26 deployments)			
	Freq.	Mean LOS	Std. Dev.	Med. LOS	Freq.	Mean LOS	Std. Dev.	Med. LOS
Infective and Parasitic Diseases	1,135	8.4	11.8	5.0	445	9.5	14.7	5.0
Infectious Mononucleosis	242	11.0	7.7	10.0	63	12.3	8.2	10.0
Other Viral Diseases*	246	3.7	3.4	3.0	117	4.5	3.3	4.0
Neoplasms	323	9.7	9.9	7.0	229	9.3	13.6	7.0
Neoplasm Benign Of Oth. & Unsp. Organs & Tissues	261	10.0	7.3	8.0	182	9.3	7.3	7.0
Endocrine, Nutritional And Metabolic Diseases	49	16.0	35.8	5.0	43	13.7	16.9	7.0
Diseases Of Blood And Blood Forming Organs	60	7.7	10.4	4.0	11	2.8	2.0	2.0
Mental Disorders*	533	12.5	21.3	4.0	254	16.3	24.0	6.0
Neurosis*	169	6.9	14.0	3.0	87	10.3	20.1	4.0
Personality Disorders	106	19.5	21.9	12.0	62	24.4	27.1	13.0
Diseases Of The Nervous System And Sense Organs	359	6.2	8.8	4.0	105	9.2	16.3	4.0
Diseases Of The Circulatory System*	512	7.0	8.4	5.0	244	8.2	9.7	6.0
Hemorrhoids	272	6.2	5.0	5.0	111	6.3	3.1	6.0
Diseases Of The Respiratory System*	3,174	4.5	5.6	3.0	874	4.9	6.0	4.0
Acute Tonsillitis	530	3.9	3.2	3.0	115	3.9	2.3	3.0
Influenza*	1,016	3.7	2.6	3.0	254	2.9	2.2	2.0
Diseases Of The Digestive System*	1,737	6.4	7.4	5.0	909	7.4	9.3	6.0
Acute Appendicitis	178	8.8	10.2	7.0	116	9.4	6.3	8.0
Inguinal Hernia Without Mention Of Obstruction	453	8.8	5.3	8.0	250	9.3	5.0	8.0
Gastroenteritis/Colitis Exc. Ulcer. Of Noninf. Origin	529	3.0	4.1	2.0	188	3.2	4.9	2.0
Diseases Of The Genitourinary System*	2,501	4.1	5.1	3.0	1,049	4.1	3.7	3.0
Calculus Of Kidney And Ureter	232	5.6	6.2	4.0	85	6.0	6.3	4.0
Orchitis And Epididymitis	269	6.5	5.9	5.0	95	5.7	3.8	5.0
Redundant Prepuce And Phimosis*	1,485	2.8	2.0	2.0	666	3.3	1.9	3.0
Diseases Of The Skin And Subcutaneous Tissue	2,044	6.1	7.3	4.0	614	6.2	6.2	4.5
Other Cellulitis Abscess WO Mention Lymphangitis	836	5.6	5.8	4.0	195	5.1	3.2	4.0
Other Cellulitis Abscess With Lymphangitis	307	5.2	4.1	4.0	103	5.6	4.8	5.0
Diseases Of The Musculoskeletal System & Conn. Tissue	441	10.4	21.4	4.0	206	11.6	22.9	4.0
Synovitis Bursitis Tenosynovitis	127	4.1	4.1	3.0	71	4.3	3.5	3.0
Congenital Anomalies	17	13.1	21.9	5.0	25	11.0	20.1	7.0
Symptoms And Ill-Defined Conditions	694	5.4	7.7	3.0	263	8.1	14.6	4.0
Other General Symptoms	181	4.4	3.9	3.0	47	6.6	6.2	4.0
Accidents, Poisoning And Violence*	2,551	7.6	13.6	4.0	1,149	9.6	18.4	4.0
Overall*:	16,130	6.4	10.3	4.0	6,420	7.6	13.1	4.0

* LOS distributions between Vietnam combat support and Mediterranean peacetime (1965-1972) are significantly different.

**TABLE 5. LENGTH OF STAY STATISTICS BY MAJOR DIAGNOSTIC CATEGORY
VIETNAM COMBAT SUPPORT VS. WESTPAC PEACETIME (1973-1975)**

Diagnostic Category	Vietnam 1965-1972 (68 deployments)				WestPac 1973-1975 (12 deployments)			
	Freq.	Mean LOS	Std. Dev.	Med. LOS	Freq.	Mean LOS	Std. Dev.	Med. LOS
Infective and Parasitic Diseases	1,135	8.4	11.8	5.0	267	5.7	5.0	4.0
Diarrheal Disease	139	3.2	3.3	2.0	50	3.1	2.1	2.0
Measles*	16	2.9	2.1	2.0	41	4.6	1.7	4.0
Infectious Mononucleosis*	242	11.0	7.7	10.0	32	6.8	4.9	6.0
Other Viral Diseases	246	3.7	3.4	3.0	35	3.9	3.3	4.0
Neoplasms*	323	9.7	9.9	7.0	6	2.3	1.6	2.0
Neoplasm Benign Of Oth. & Unsp. Organs & Tissues	261	10.0	7.3	8.0	0	-	-	-
Endocrine, Nutritional And Metabolic Diseases	49	16.0	35.8	5.0	0	-	-	-
Diseases Of Blood And Blood Forming Organs	60	7.7	10.4	4.0	3	5.3	3.2	4.0
Mental Disorders	533	12.5	21.3	4.0	41	6.9	13.5	3.0
Neurosis	169	6.9	14.0	3.0	10	4.8	3.8	3.5
Personality Disorders	106	19.5	21.9	12.0	5	4.0	3.0	3.0
Diseases Of The Nervous System And Sense Organs	359	6.2	8.8	4.0	39	5.5	7.7	3.0
Conjunctivitis And Ophthalmia	145	3.9	4.0	3.0	24	4.6	3.2	4.0
Diseases Of The Circulatory System	512	7.0	8.4	5.0	43	6.2	6.7	5.0
Hemorrhoids	272	6.2	5.0	5.0	22	5.7	2.3	6.0
Diseases Of The Respiratory System	3,174	4.5	5.6	3.0	153	4.9	4.2	4.0
Acute Tonsilitis*	530	3.9	3.2	3.0	43	5.0	2.5	5.0
Influenza	1,016	3.7	2.6	3.0	11	3.0	1.3	3.0
Pneumonia Unspecified	88	6.1	7.3	5.0	24	7.2	7.8	4.0
Diseases Of The Digestive System	1,737	6.4	7.4	5.0	101	6.4	4.6	5.0
Acute Appendicitis	178	8.8	10.2	7.0	9	8.7	4.9	7.0
Appendix	130	7.5	7.4	6.0	18	6.6	4.4	5.0
Inguinal Hernia Without Mention Of Obstruction*	453	8.8	5.3	8.0	34	6.6	4.2	6.0
Gastroenteritis/Colitis Exc. Ulcer. Of Noninf. Origin	529	3.0	4.1	2.0	1	2.0	0.0	2.0
Diseases Of The Genitourinary System	2,501	4.1	5.1	3.0	191	4.0	3.4	3.0
Calculus Of Kidney And Ureter	232	5.6	6.2	4.0	16	5.8	7.2	3.0
Orchitis And Epididymitis	269	6.5	5.9	5.0	29	5.3	3.4	5.0
Redundant Prepuce And Phimosis	1,485	2.8	2.0	2.0	95	2.9	1.9	3.0
Male Genital Organs Other Disease Of*	179	3.8	5.9	2.0	26	5.7	3.6	5.0
Diseases Of The Skin And Subcutaneous Tissue*	2,044	6.1	7.3	4.0	225	4.3	3.4	3.0
Other Cellulitis Abscess WO Mention Lymphangitis	836	5.6	5.8	4.0	0	-	-	-
Other Cellulitis Abscess With Lymphangitis*	307	5.2	4.1	4.0	156	4.0	2.4	3.0
Diseases Of The Musculoskeletal Svs. & Conn. Tissue*	441	10.4	21.4	4.0	62	4.4	6.6	2.0
Vertebrogenic Pain Syndrome	69	7.7	14.1	4.0	31	4.4	5.0	3.0
Synovitis Bursitis Tenosynovitis*	127	4.1	4.1	3.0	15	1.6	0.8	1.0
Congenital Anomalies	17	13.1	21.9	5.0	6	3.0	2.4	3.0
Symptoms And Ill-Defined Conditions	694	5.4	7.7	3.0	73	5.0	5.9	3.0
Symptoms Referable To Abdomen & Lower GI Tract	142	4.7	4.9	3.0	19	4.5	3.2	4.0
Other General Symptoms	181	4.4	3.9	3.0	13	5.7	5.5	3.0
Accidents, Poisoning And Violence*	2,551	7.6	13.6	4.0	206	4.6	5.6	3.0
Overall*:	16,130	6.4	10.3	4.0	1,416	5.0	5.4	4.0

* LOS distributions between Vietnam combat support and WestPac peacetime (1973-1975) are significantly different.

**TABLE 6. LENGTH OF STAY STATISTICS BY MAJOR DIAGNOSTIC CATEGORY
WESTPAC PEACETIME (1976-1989) VS. MEDITERRANEAN PEACETIME (1976-1989)**

Diagnostic Category	WestPac 1976-1989 (25 deployments)				Med. 1976-1989 (21 deployments)			
	Freq.	Mean LOS	Std. Dev.	Med. LOS	Freq.	Mean LOS	Std. Dev.	Med. LOS
Infective and Parasitic Diseases	166	4.3	3.6	3.0	274	4.8	6.0	3.0
Diarrheal Disease	30	3.3	3.7	2.0	67	2.6	1.6	2.0
Chickenpox	17	5.4	2.1	5.0	20	6.0	2.6	6.0
Viral Hepatitis	9	10.4	7.1	10.0	7	20.7	15.3	18.0
Other Viral Diseases	34	2.4	1.6	2.0	44	3.7	2.9	3.0
Neoplasms	1	1.0	0.0	1.0	9	13.3	31.5	2.0
Endocrine, Nutritional And Metabolic Diseases	4	2.8	1.3	3.0	13	6.4	4.4	4.0
Diseases Of Blood And Blood Forming Organs	5	3.8	1.8	4.0	11	3.3	1.8	3.0
Mental Disorders	36	4.4	6.8	2.0	188	6.2	12.7	2.0
Neurosis	5	4.8	5.5	1.0	30	3.6	3.5	2.0
Diseases Of The Nervous System And Sense Organs	24	3.1	2.3	3.0	51	3.5	3.3	2.0
Diseases Of The Circulatory System*	30	2.8	2.1	2.5	81	7.4	18.3	4.0
Diseases Of The Respiratory System	93	4.0	2.6	3.0	137	4.3	3.1	4.0
Acute Tonsillitis	14	3.9	2.2	3.0	17	4.1	2.2	3.0
Pneumonia Unspecified	17	4.6	2.3	4.0	28	5.5	4.5	4.0
Diseases Of The Digestive System	145	4.2	3.8	3.0	388	4.6	4.8	3.0
Disorders Of Tooth Development And Eruption	17	0.8	0.5	1.0	71	1.4	3.6	1.0
Acute Appendicitis	3	5.3	2.1	6.0	35	7.2	4.5	6.0
Appendix	14	5.9	4.8	5.0	25	7.4	5.0	6.0
Inguinal Hernia Without Mention Of Obstruction	49	5.8	2.4	6.0	102	5.5	4.1	5.0
Other Diseases Of Liver	6	4.7	4.5	3.5	4	23.5	7.4	21.5
Diseases Of The Genitourinary System*	239	2.4	1.8	2.0	616	2.1	1.7	2.0
Redundant Prepuce And Phimosis	174	1.9	0.9	2.0	475	1.7	0.8	2.0
Diseases Of The Skin And Subcutaneous Tissue	180	4.2	2.9	3.0	345	4.5	3.5	4.0
Other Cellulitis Abscess With Lymphangitis	127	4.0	2.8	3.0	202	4.4	3.1	4.0
Pilonidal Cyst	5	4.4	4.3	2.0	65	5.6	4.1	5.0
Diseases Of The Musculoskeletal Sys. & Conn. Tissue	38	4.5	4.1	3.0	148	5.5	6.6	4.0
Vertebrogenic Pain Syndrome	16	5.7	5.1	4.0	61	5.8	6.7	4.0
Congenital Anomalies	2	7.0	2.8	7.0	7	8.4	12.0	3.0
Symptoms And Ill-Defined Conditions	67	3.4	3.7	2.0	172	4.0	5.8	3.0
Symptoms Referable To Abdomen & Lower GI Tract	15	2.3	1.2	2.0	44	2.7	1.8	2.0
Other General Symptoms	30	3.5	2.6	2.5	21	3.8	2.8	3.0
Accidents, Poisoning And Violence	157	3.5	3.7	2.0	838	4.5	7.1	2.0
Overall:	1,187	3.6	3.4	3.0	3,278	4.3	6.8	2.0

* LOS distributions between WestPac peacetime (1976-1989) and Mediterranean peacetime (1976-1989) are significantly different.

APPENDIX A.

VIETNAM COMBAT SUPPORT DEPLOYMENTS (JANUARY 1, 1965 TO JANUARY 27, 1973)

Carrier Name	Vietnam Combat Zone			
	Arrival Date	Departure Date*	Arrival Date	Departure Date*
USS Yorktown (CVS 10)	Jan. 22, 1966	Jul. 5, 1966	Feb. 19, 1968	Jun. 21, 1968
USS Hornet (CVS 12)	Sep. 5, 1965 Oct. 18, 1968	Feb. 8, 1966 Apr. 21, 1969	Apr. 25, 1967	Oct. 18, 1967
USS Ticonderoga (CVS 14)	Oct. 25, 1965 Jan. 13, 1968	May 7, 1966 Aug. 9, 1968	Oct. 27, 1966 Feb. 18, 1969	May 22, 1967 Sep. 10, 1969
USS Hancock (CVA 19)	Dec. 6, 1965 Aug. 6, 1968 Nov. 7, 1970	Jul. 21, 1966 Feb. 23, 1969 May 19, 1971	Jan. 20, 1967 Aug. 21, 1969 Jan. 28, 1972	Jul. 14, 1967 Apr. 6, 1970 Sep. 25, 1972
USS Bon Homme Richard (CVA 31)	May 12, 1965 Feb. 9, 1968 Apr. 21, 1970	Jan. 4, 1966 Sep. 29, 1968 Nov. 3, 1970	Feb. 10, 1967 Apr. 6, 1969	Aug. 17, 1967 Oct. 19, 1969
USS Oriskany (CVA 34)	Apr. 27, 1965 Jun. 26, 1967 Jun. 1, 1970 Jun. 21, 1972	Dec. 6, 1965 Jan. 23, 1968 Nov. 29, 1970 Jan. 27, 1973*	Jun. 11, 1966 May 5, 1969 Jun. 4, 1971	Nov. 8, 1966 Nov. 10, 1969 Dec. 8, 1971
USS Midway (CV 41)	Mar. 22, 1965 Apr. 21, 1972	Nov. 14, 1965 Jan. 27, 1973*	May 7, 1971	Oct. 24, 1971
USS Coral Sea (CV 43)	Jan. 23, 1965 Sep. 23, 1968 Dec. 8, 1971	Oct. 23, 1965 Apr. 11, 1969 Jul. 11, 1972	Aug. 11, 1966 Oct. 14, 1969	Feb. 16, 1967 Jun. 18, 1970
USS Forrestal (CV 59)	Jul. 8, 1967	Aug. 22, 1967		
USS Ranger (CV 61)	Jan. 3, 1966 Nov. 12, 1968 Nov. 11, 1970	Aug. 18, 1966 May 10, 1969 Jun. 9, 1971	Nov. 20, 1967 Nov. 4, 1969 Nov. 28, 1972	May 18, 1968 May 23, 1970 Jan. 27, 1973*
USS Independence (CV 62)	Jun. 5, 1965	Nov. 21, 1965		
USS Kitty Hawk (CV 63)	Nov. 15, 1965 Dec. 6, 1967 Nov. 27, 1970	Jun. 6, 1966 Jun. 20, 1968 Jul. 6, 1971	Nov. 17, 1966 Jan. 15, 1969 Mar. 1, 1972	Jun. 12, 1967 Aug. 27, 1969 Nov. 17, 1972
USS Constellation (CV 64)	May 29, 1966 Jun. 14, 1968 Oct. 27, 1971	Nov. 24, 1966 Jan. 23, 1969 Jun. 24, 1972	May 15, 1967 Sep. 1, 1969 Jan. 16, 1973	Nov. 26, 1967 May 8, 1970 Jan. 27, 1973*
USS America (CV 66)	May 12, 1970	Nov. 23, 1970	Jul. 1, 1972	Jan. 27, 1973*
USS Enterprise (CVN 65)	Dec. 3, 1966 Mar. 17, 1969	Jun. 30, 1967 Jun. 26, 1969	Jan. 14, 1968 Sep. 19, 1972	Jul. 12, 1968 Jan. 27, 1973*
USS Bennington (CVS 20)	May 23, 1965 Jun. 17, 1968	Sep. 21, 1965 Oct. 25, 1968	Dec. 5, 1966	Apr. 19, 1967
USS Kearsarge (CVS 33)	Jul. 11, 1966 Apr. 15, 1969	Dec. 11, 1966 Aug. 18, 1969	Oct. 12, 1967	Mar. 28, 1968

*Vietnam combat cease-fire date (January 27, 1973) is given if carrier was in the region beyond that date.

**MEDITERRANEAN PEACETIME DEPLOYMENTS
(JANUARY 1, 1965 TO DECEMBER 31, 1972)**

Carrier Name	Homeport			
	Departure Date	Arrival Date	Departure Date	Arrival Date
USS Shangri La (CVS 38)	Feb. 10, 1965	Sep. 20, 1965	Sep. 29, 1966	May 20, 1967
	Nov. 15, 1967	Aug. 4, 1968	Jan. 7, 1969	Jul. 29, 1969
USS FD Roosevelt (CVA 42)	Jun. 28, 1965	Dec. 17, 1965	Aug. 24, 1967	May 19, 1968
	Jan. 2, 1970	Jul. 27, 1970	Jan. 29, 1971	Jul. 23, 1971
	Feb. 15, 1972	Dec. 8, 1972		
USS Forrestal (CV 59)	Aug. 24, 1965	Apr. 7, 1966	Jul. 22, 1968	Apr. 29, 1969
	Dec. 2, 1969	Jul. 8, 1970	Jan. 5, 1971	Jul. 2, 1971
	Sep. 22, 1972	Jul. 6, 1973		
USS Saratoga (CV 60)	Nov. 28, 1964	Jul. 12, 1965	Mar. 11, 1966	Oct. 26, 1966
	May 2, 1967	Dec. 6, 1967	Jul. 9, 1969	Jan. 22, 1970
	Jun. 17, 1970	Nov. 9, 1970		
USS Independence (CV 62)	Jun. 13, 1966	Feb. 1, 1967	Apr. 30, 1968	Jan. 27, 1969
	Jun. 23, 1970	Jan. 31, 1971		
USS America (CV 66)	Nov. 30, 1965	Jul. 10, 1966	Jan. 10, 1967	Sep. 20, 1967
	Jul. 6, 1971	Dec. 16, 1971		
USS JF Kennedy (CV 67)	Apr. 5, 1969	Dec. 21, 1969		

**WESTPAC PEACETIME DEPLOYMENTS
(JANUARY 1, 1973 TO DECEMBER 31, 1975)**

Carrier Name	Homeport			
	Departure Date	Arrival Date	Departure Date	Arrival Date
USS Hancock (CVA 19)	Mar. 18, 1975	Oct. 20, 1975		
USS Oriskany (CVA 34)	Sep. 16, 1975	Mar. 3, 1976		
USS Midway (CV 41)	Sep. 11, 1973	Oct. 5, 1973	Nov. 26, 1973	Dec. 22, 1973
	Jan. 29, 1974	Mar. 6, 1974	Oct. 18, 1974	Dec. 20, 1974
	Jan. 13, 1975	Feb. 18, 1975	Mar. 31, 1975	May 29, 1975
USS Coral Sea (CV 43)	Mar. 9, 1973	Nov. 8, 1973	Dec. 5, 1974	Jul. 2, 1975
USS Ranger (CV 61)	May 7, 1974	Oct. 18, 1974		
USS Kitty Hawk (CV 63)	May 21, 1975	Dec. 15, 1975		

WESTPAC PEACETIME DEPLOYMENTS
(JANUARY 1, 1976 TO EARLY 1989)

Carrier Name	Homeport			
	Departure Date	Arrival Date		
USS Midway (CV 41)	Mar. 13, 1976	Apr. 26, 1976	May 19, 1976	Jun. 22, 1976
	Jul. 9, 1976	Aug. 4, 1976	Nov. 1, 1976	Dec. 17, 1976
	Jan. 11, 1977	Mar. 1, 1977	Apr. 19, 1977	Sep. 5, 1977
	Aug. 8, 1977	Sep. 2, 1977	Apr. 11, 1978	May 23, 1978
	Aug. 20, 1979	Sep. 14, 1979	Jun. 26, 1981	Jul. 16, 1981
	Sep. 3, 1981	Oct. 6, 1981	Apr. 26, 1982	Jun. 18, 1982
	Jun. 2, 1983	Aug. 8, 1983	Oct. 25, 1983	Dec. 11, 1983
	Nov. 15, 1985	Dec. 12, 1985	Jan. 17, 1986	Mar. 30, 1986
	Jan. 9, 1987	Mar. 20, 1987	Apr. 23, 1987	Jul. 13, 1987
	Oct. 18, 1988	Nov. 9, 1988	Jan. 21, 1989	Feb. 24, 1989
USS Coral Sea (CV 43)	Feb. 15, 1977	Oct. 5, 1977		
USS Ranger (CV 61)	Feb. 21, 1979	Sep. 22, 1979		
USS Kitty Hawk (CV 63)	Oct. 25, 1977	May 15, 1978		
USS Constellation (CV 64)	Apr. 12, 1977	Nov. 21, 1977		

MEDITERRANEAN PEACETIME DEPLOYMENTS
(JANUARY 1, 1976 TO EARLY 1989)

Carrier Name	Homeport			
	Departure Date	Arrival Date	Departure Date	Arrival Date
USS FD Roosevelt (CVA 42)	Oct. 4, 1976	Apr. 21, 1977		
USS Coral Sea (CV 43)	Oct. 1, 1985	May 19, 1986	Sep. 29, 1987	Mar. 28, 1988
	May 31, 1989	Sep. 30, 1989		
USS Forrestal (CV 59)	Nov. 27, 1979	May 7, 1980	Jun. 2, 1986	Nov. 10, 1986
USS Saratoga (CV 60)	Jan. 6, 1976	Jul. 28, 1976	Jul. 11, 1977	Dec. 23, 1977
	Oct. 3, 1978	Apr. 5, 1979	Apr. 2, 1984	Oct. 20, 1984
USS Independence (CV 62)	Mar. 31, 1977	Oct. 21, 1977	Jun. 28, 1979	Dec. 14, 1979
USS America (CV 66)	Apr. 15, 1976	Oct. 25, 1976	Sep. 29, 1977	Apr. 25, 1978
	Mar. 13, 1979	Sep. 22, 1979		
USS JF Kennedy (CV 67)	Jan. 15, 1977	Aug. 1, 1977	Aug. 4, 1980	Mar. 28, 1981
	Aug. 18, 1986	Mar. 3, 1987		
USS Nimitz (CVN 68)	Jul. 7, 1976	Feb. 7, 1977		
USS Eisenhower (CVN 69)	Jan. 16, 1979	Jul. 13, 1979	Jan. 5, 1982	Jul. 13, 1982

REPORT DOCUMENTATION PAGE		Form Approval OMD No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for receiving instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA. 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.			
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 30 September 1998	3. REPORT TYPE AND DATE COVERED Final Oct. 96- Sep. 98	
4. TITLE AND SUBTITLE SHIPBOARD MEDICAL ADMISSIONS DURING PEACETIME AND COMBAT SUPPORT DEPLOYMENTS		5. FUNDING NUMBERS 63706N M0095.005-6704	
6. AUTHOR(S) Berg R. Derderian, Christopher G. Blood			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Health Research Center P.O. Box 85122 San Diego, CA 92186-5122		8. PERFORMING ORGANIZATION NHRC Report No. 98-30	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of Naval Research Chief, Bureau of Medicine and Surgery 800 North Quincy St. Code: BUMED-26 Arlington, VA 22217-5600 2300 E. Street NW Washington, DC 20372-5300		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Hospitalizations aboard aircraft carriers were examined to ascertain differences in illness type attributable to theater of operations and combat deployment status. Percent distributions and lengths-of-stay (LOS) statistics of major diagnostic categories are provided and compared between Vietnam combat support and peacetime modes of operations, and between WestPac and Mediterranean theater of operations. Respiratory disease proportions were found to be significantly higher for Vietnam combat support deployments than during subsequent peacetime deployments. For peacetime deployments, WestPac had higher percentages of infective, respiratory and skin disorders, while the Mediterranean had a larger proportion of total admissions comprised by accidents.			
14. SUBJECT TERMS Disease and nonbattle injuries, inpatient admissions, aircraft carriers, percent distributions, length-of-stay		15. NUMBER OF PAGES 23	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited